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# RBC and Economic Capital: The Malaysian Experience

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# Agenda

- Introduction to economic capital
- RBC: The experience in the conventional market in Malaysia
- Draft RBC for takaful
- Conclusion
  
- Appendix: Case study - Capital under draft RBCT

# Introduction to Economic Capital

## Risk Transfer

- In an insurance contract there is a transfer of risk from the insured to the insurer
- For the premium payable the insurer undertakes to take on the contingent liability on to its balance sheet
- The insurer may then seek to mitigate this risk in the 'wholesale risk market' i.e. reinsurance market



## Risk Sharing

- Expectation that total premiums collected will be sufficient to pay claims
- Premium adjustment through surplus sharing
- Alternatively adjust quantum of benefit payable to available resources
- Otherwise use retained surplus to manage claims
- Risk Sharing can be across products, time and/or geography

## Capacity

- Defined as the extent of the insurer's ability to take risk
- The bigger the capacity the bigger the risk that the insurer can insure
- For an insurance company capacity is determined by the amount of capital that is available to the insurer, the reinsurance support that is available to the insurer and the risk portfolio size and diversity
- Under risk sharing, capacity can be increased by a bigger risk pool including through the utilization of retakaful and the level of diversification of risk underwritten

## Insurance Capital

- Modern Insurance involves setting capital aside to guarantee claims are met. This can be described as capital taking *speculative risk* as there is a risk transfer from the insured to the insurer..



## What determines the capital required per unit of risk?

- Capital required per unit of risk can be determined as the likelihood that there are sufficient funds to cover the total expected losses in a portfolio –If the probability required is 99.5% then the capital would be expected to be sufficient in 199 years out of 200 years of experience
- If the company is willing to be less certain of solvency, say level of sufficiency targeted is 100 out of 200 years instead of 199 years out of 200 years, more risks can be taken per unit of capital
- Example, and for a given expected claims distribution...

100 in capital → underwrite 200 in premiums *for* 99.5% probability of sufficiency

**OR**

100 in capital → underwrite 500 in premiums *for* 50% probability of sufficiency



## What determines the capital required per unit of risk?

- This capital can be determined by the insurer's risk appetite and its expectation of economic and claims experience. Something called 'Economic Capital'.
- Capital required can also be determined by Regulations
- In practice the capital actually required will be the greater of the above two computations

# RBC: The experience in the conventional market in Malaysia

## The idea behind Risk Based Capital

- Prior to RBC insurers have regulations on the maximum amount they can invest in equities, bonds, properties etc. They also have to invest a certain minimum amount in government securities as these investments were considered 'risk free'
- The capital required for different products prior to RBC is insensitive to the product features. The solvency margin required is typically computed as a percentage of premiums or reserves. As a result, relative to the risk undertaken the capital requirement can be excessive for some insurer but inadequate for others
- Implementation of Risk Based Capital will see many investment restrictions removed and replaced with specific capital charges. These charges will vary by the level of risk (defined as volatility)

## The idea behind Risk Based Capital



- There will be mandated charges on premiums, outstanding claims provision and investment, designed to ensure that a certain level of capital is being held for the expected volatility, risks taken, as to products and investment.
- Some credit can be taken where the risk portfolio is diversified.

# Component of Risk Charges

## Total Risk Charges

=

Asset Risk Charges

+

Interest Rate Risk Charges

+

Life Insurance Risk Charges\*

+

Credit Risk Charges

+

Operational Risk Charges



\* Inclusive of Expense Risk

## Malaysian Experience in RBC

- First Proposal for RBC in 2005
- Industry was not very happy with the initial proposal as many insurers saw their required capital increased significantly overnight. Of particular concern was the basis as it relates to certain features of the liability computation:
  - Discount Rates were capped at tenth year
  - Uses benchmark bonds Yield To Maturity (YTM) rather than spot rates
  - No stabilization adjustment to the discount rate / yield curve
  - Uses ‘ aggregate worst case scenario’
  - No provision for diversification credit between risk classes
  - Penal basis proposed for participating funds
- Minimum CAR set at 130%. However, internal CAR was expected to be higher at 150% to 180%

## Implications

- Concerns that a conservative RBC basis will mean that Malaysian insurers will be seen as less 'strong' in terms of excess capital than companies in neighboring countries which have less conservative RBC computation basis
- Concerns that the Appraisal Value of local companies would drop significantly and will be sold cheaply to foreigners
- In 2006 there were only nine Life insurance companies above the statutory CAR of 130%
- In March 2007, only six Life insurers were above this supervisory target generally as a result of a drop in interest rates

## Finalized RBC Basis – Implemented from January 1 2009

- Discount rate extended/extrapolated to 15 years
- Use of spot rates rather than YTM
- BNM resorted temporarily to averaging interest rates as yields were volatile (low) for a period of time
- Abandoned the use of ‘worst case scenario’ in setting reserves
- Still no credit given for diversification between risk classes in Life insurance but credit for diversification given for General Insurance
- Allowed provision for credit of 50% of value of future bonus to meet CAR in par funds

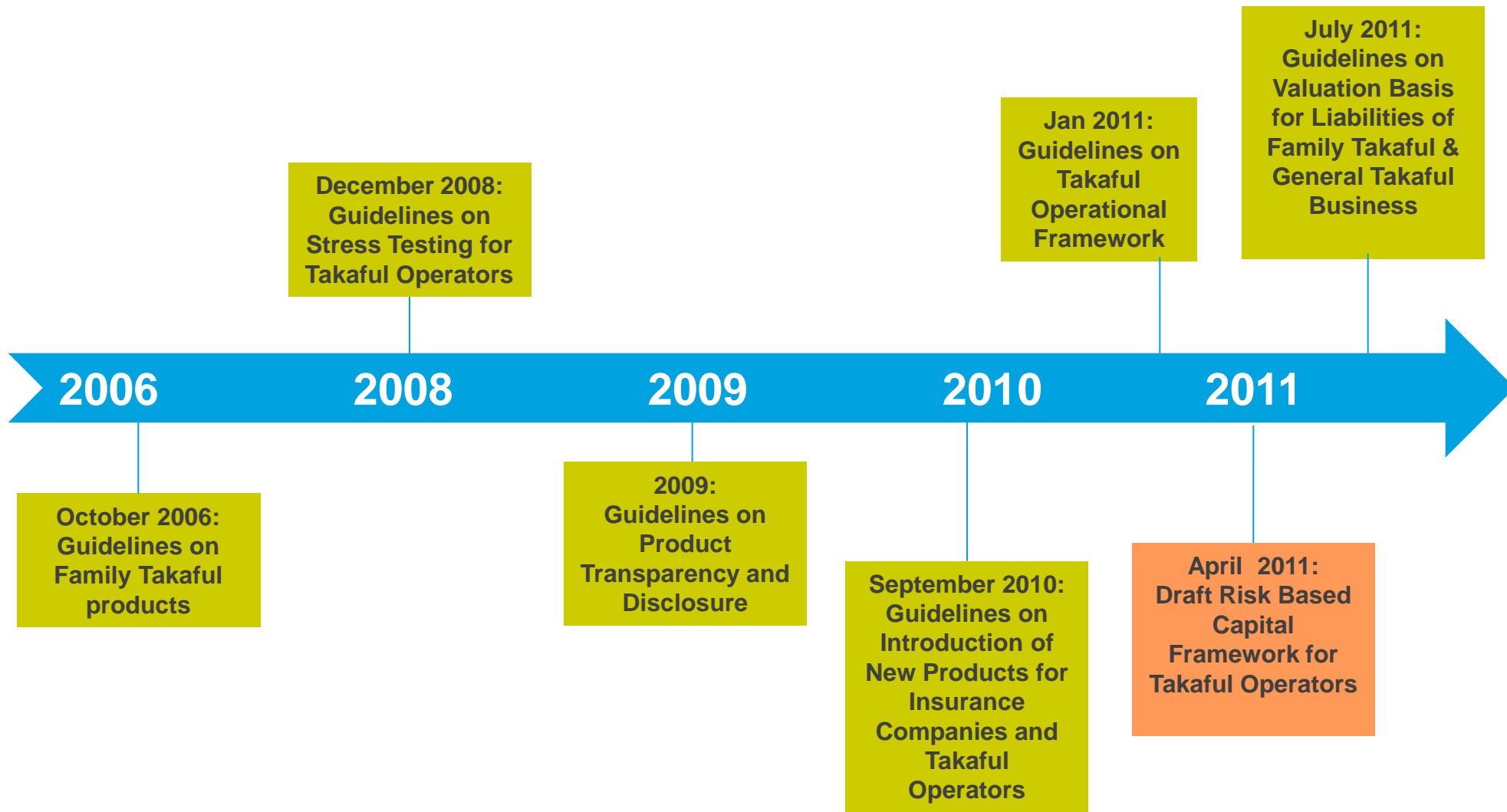


## Knock-on effect of implementation of RBC

- Movement away from capital intensive products (e.g. from guaranteed endowment products to Investment Linked products)
- The weaker companies had to be either recapitalized or merged/sold
- Sell down of existing equity holdings in the insurance funds by some companies to reduce asset risk charges so as to improve CAR
- Greater use of reinsurance to reduce capital required

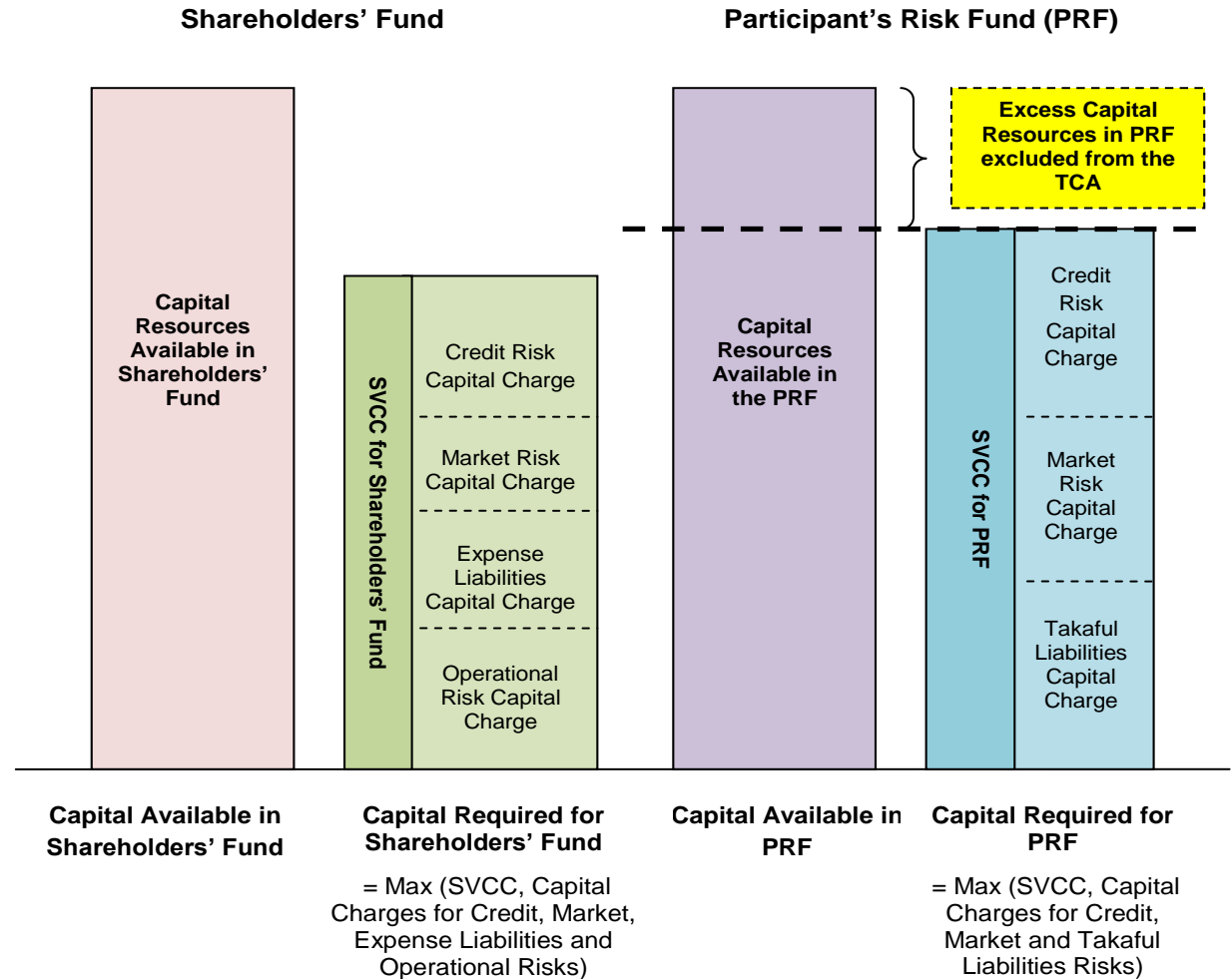
# Draft RBC for takaful

# Takaful key regulatory developments in Malaysia



# Regulatory – Draft RBCT

- Largely similar to conventional RBC
- Minimum CAR of 130% is required.
- Payment of dividend is prohibited if Individual Target Capital (>180%) is not met.
- Excess capital from PRF is excluded from the CAR calculation.



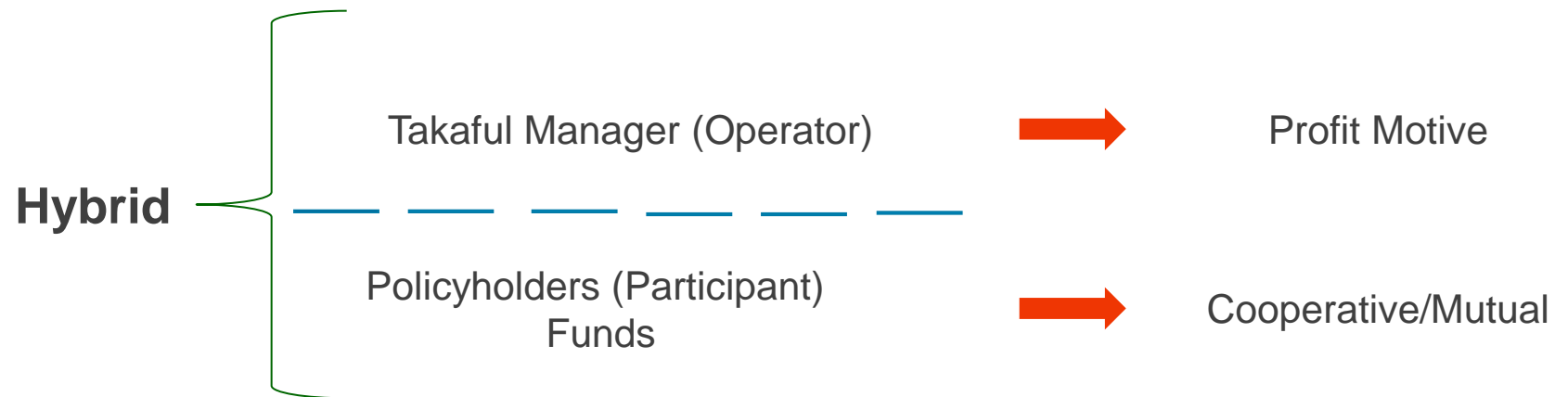
**CAR = TCA / TCR \* 100%**

*TCA = Capital Available in Shareholders' Fund + Capital Available in PRF*

*TCR = Capital Required for Shareholders' Fund + Capital Required for PRF*

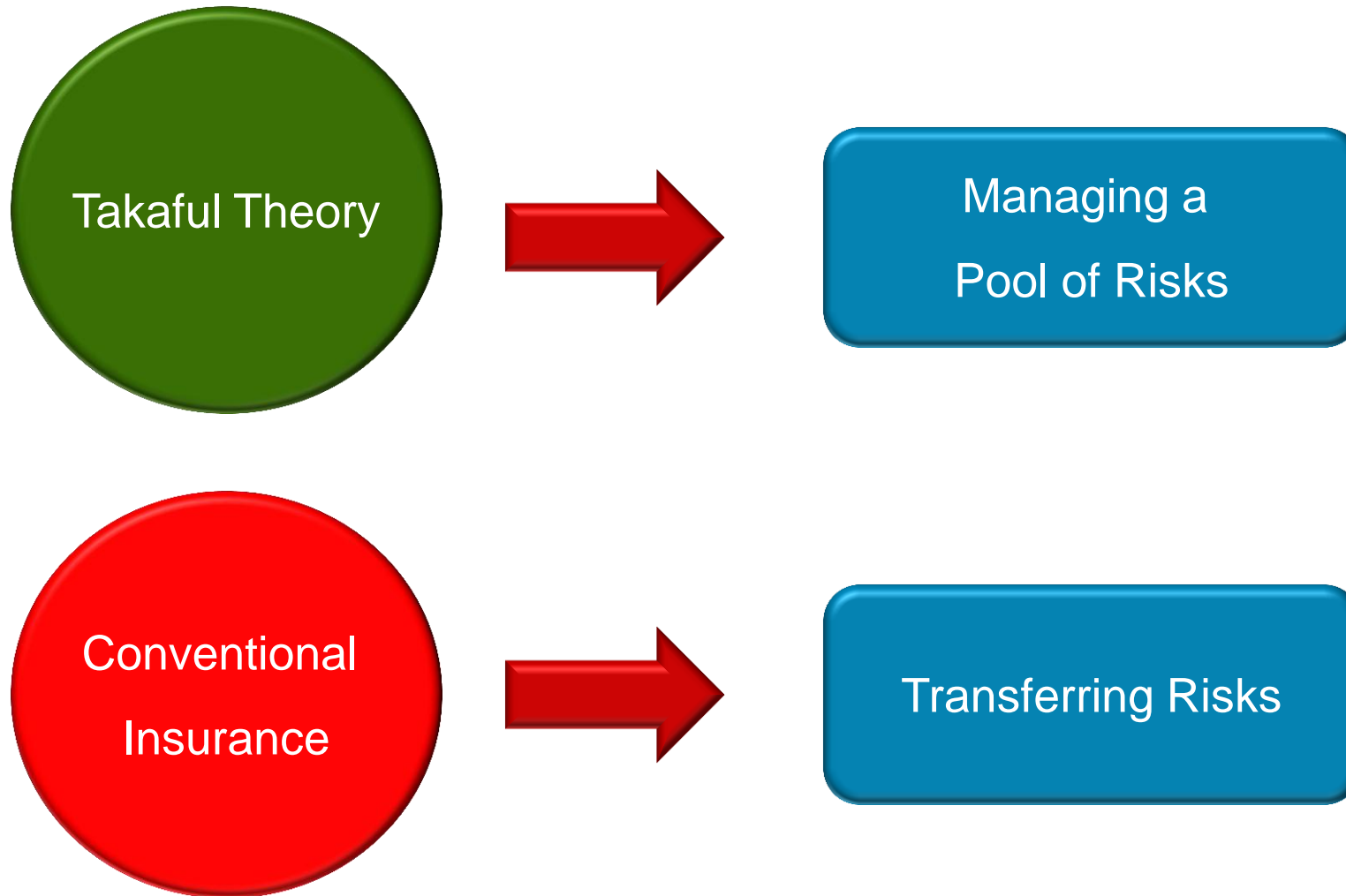
## Takaful RBC

- Question of level playing field with conventional insurance
- Its unique structure

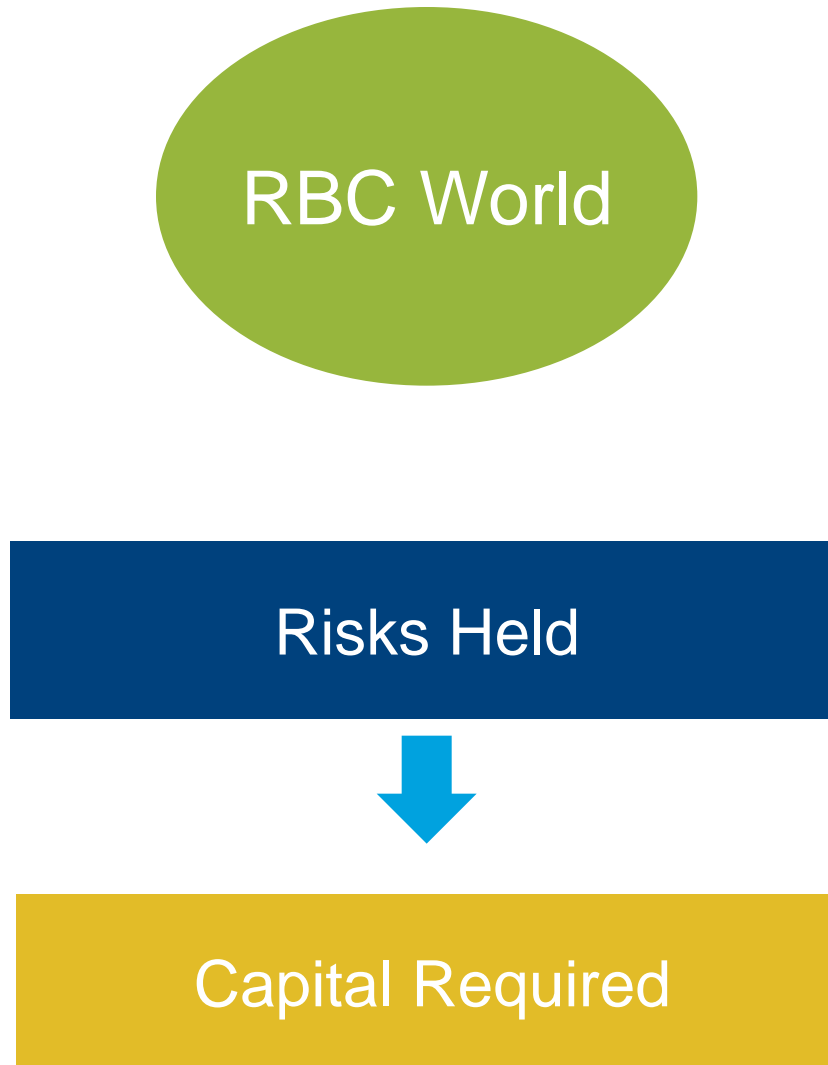


- Makes determining an appropriate RBC basis problematic.
- The issues are discussed further below.

## Back to basics - Who owns the risk?

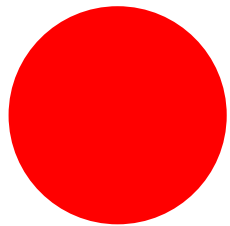


# Is Takaful Simply a Name Change?



# Risk ownership – conventional vs. takaful

## Conventional

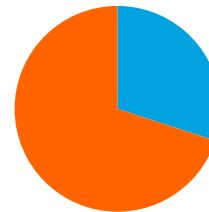


■ Shareholder



100% Shareholders

## Takaful

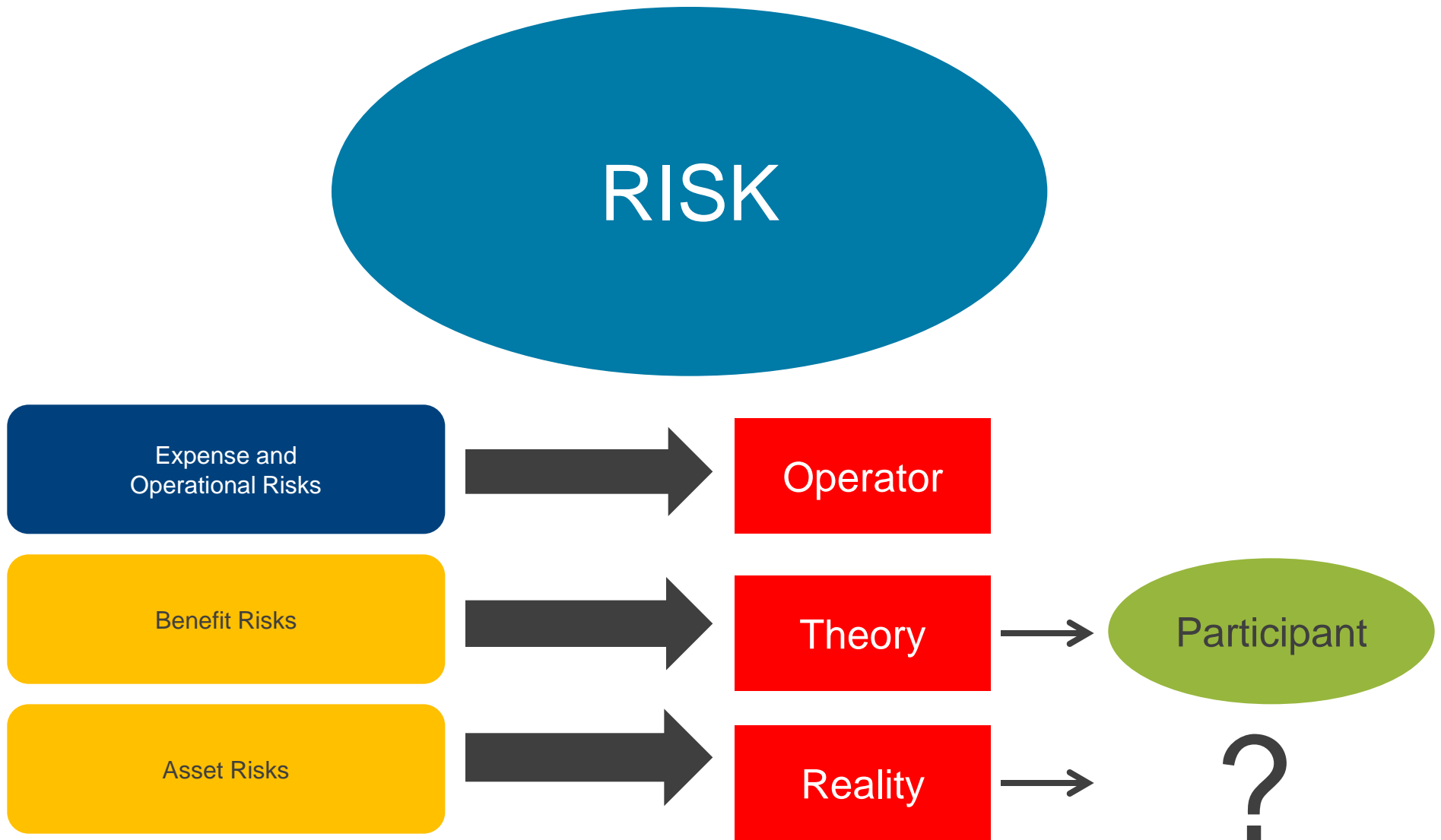


■ Operator  
■ Participant





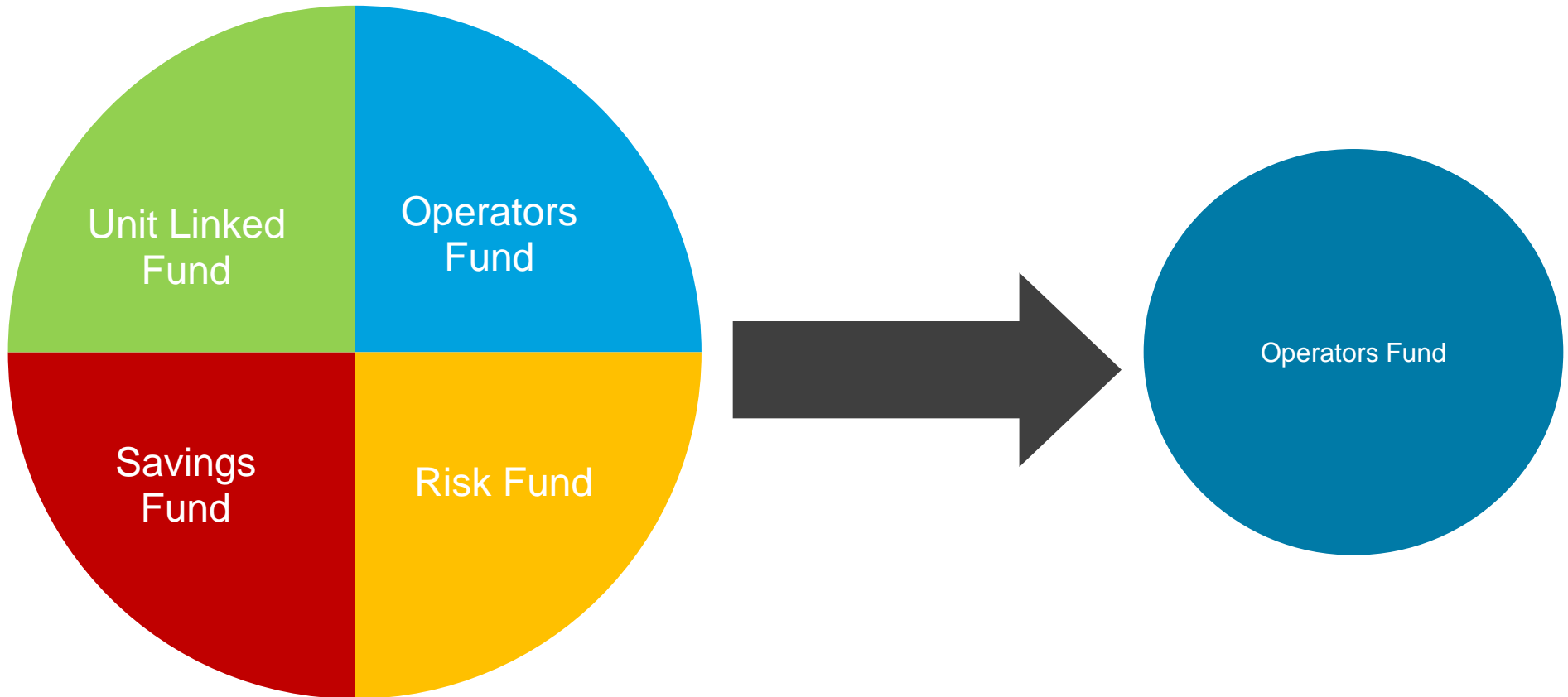
# Types of Risk Requiring Capital in Takaful



Expense charges identical to conventional insurance

# Operational Risks

- Risk charges as a percentage of all assets



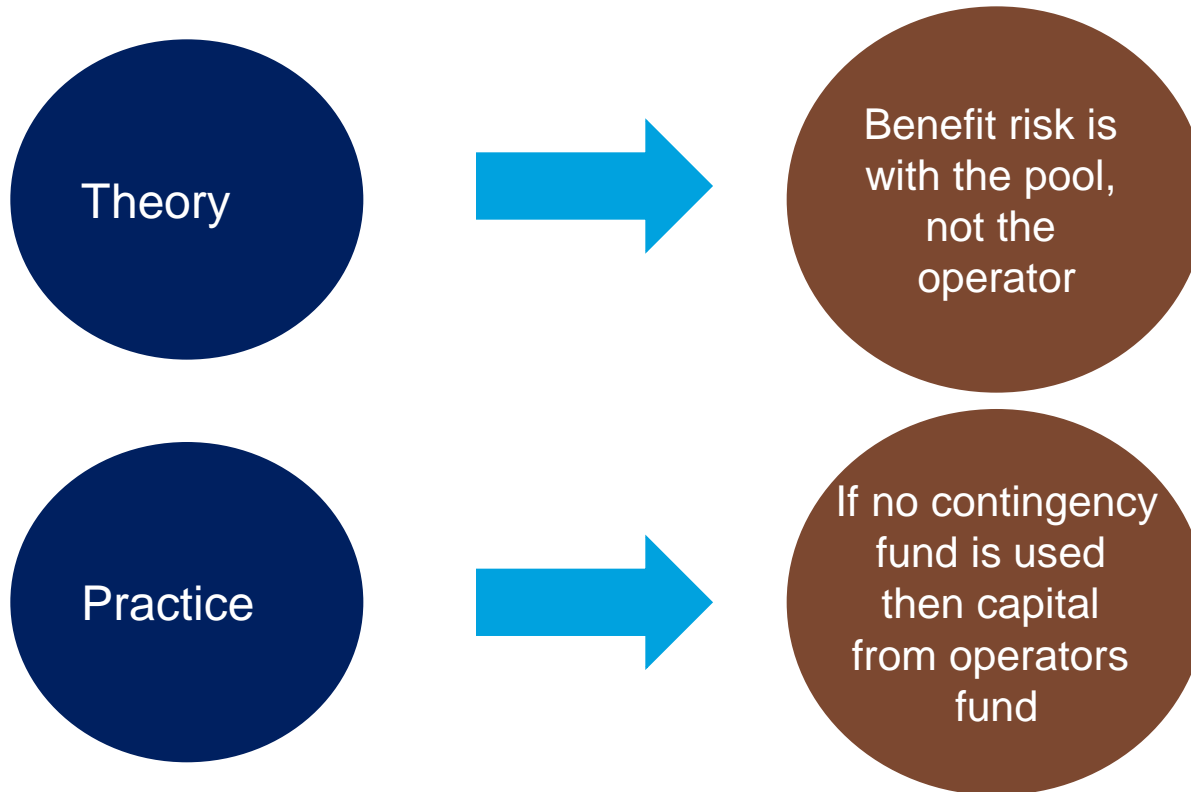
- Identical to conventional insurance

## Investment Risks

- Asset charges identical to conventional insurance
- In takaful, asset charges are not applied to the PA fund (similar to investment linked products).
- Are risks truly identical between Islamic and conventional assets?
- Comparing conventional bonds to Bai' Bithaman Ajil (BBA) and variable rate sukuk:
  - BBA uses fixed interest rates and the yield curve
  - Variable rate Sukuk includes securitized assets providing an additional level of security
- Strong argument for at least variable rate sukuk to have lower charges

## Benefit Risks

- Whereas capital for expense and operational risks must be from the operators fund, it is less clear for benefit risks



- This implies that the risk has been transferred
- Is this what we want Takaful to be?

## Benefit Risks

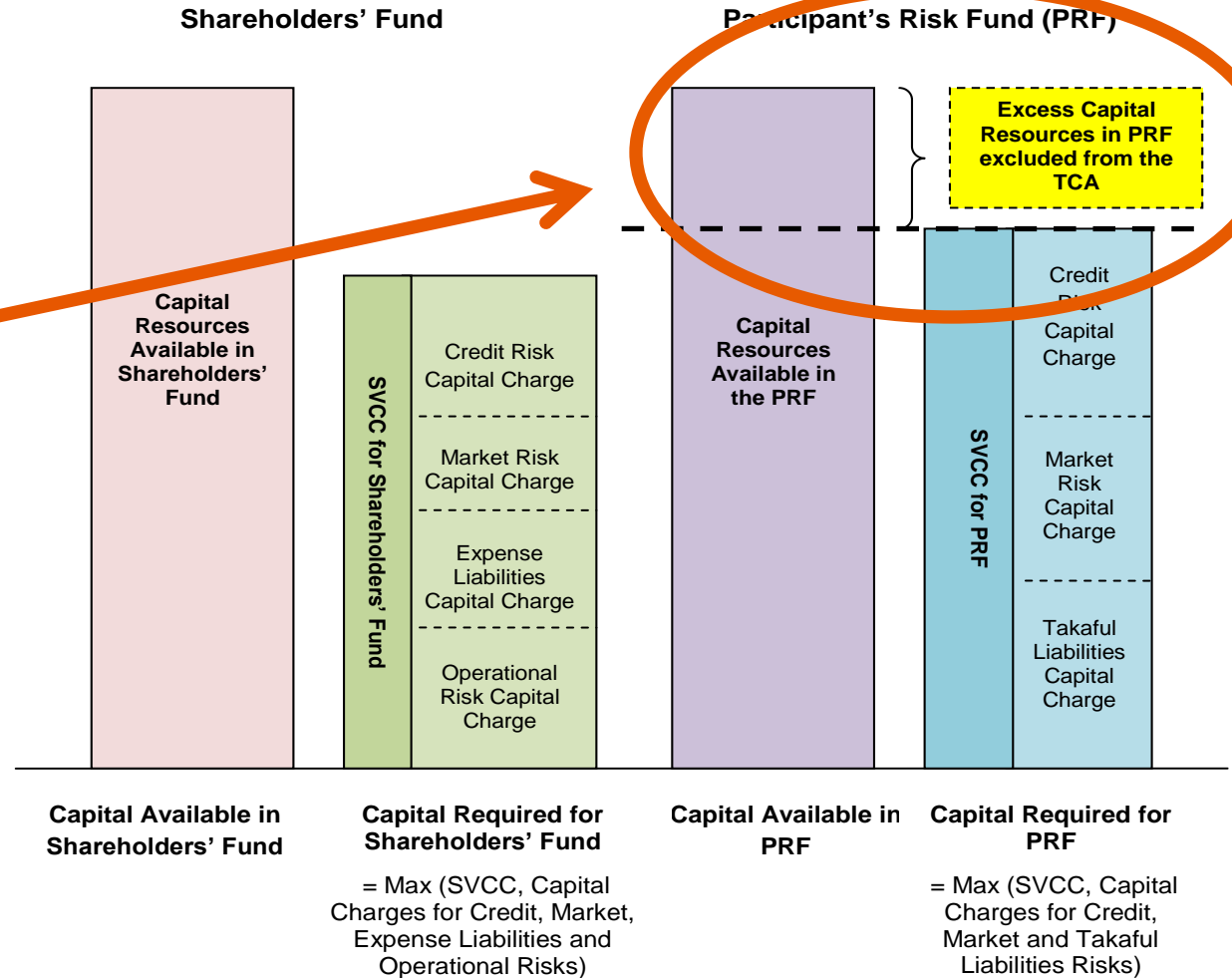
Liability (benefit) charges identical to conventional insurance

Tabarru' normally not guaranteed so drip plans have lower charges than conventional non-par or long term risk funds

-No provision for discretionary benefits in future cash flows projected to determine current liability

# Regulatory – Draft RBCT

- TCA in the risk fund is limited to 100% only



**CAR = TCA / TCR \* 100%**

*TCA = Capital Available in Shareholders' Fund + Capital Available in PRF*

*TCR = Capital Required for Shareholders' Fund + Capital Required for PRF*

## Benefit Risks

Surplus in risk fund can build up to 100% of capital required

180% or more needed as target CAR, implying part of risk transferred to operator

If we allow contingency fund to build up, hard to stop at 100% of CAR, leading to inefficient use of resources

To solve this should be no limit to TCA from each risk fund, or up to target CAR



## Qard

- Explicit requirement to provide Qard if PRF is in deficit.
- Under RBC, Qard is Tier 2 capital, similar to subordinating debt. In determining CAR, it is treated as a deduction.
- In the normal course of business, a qard is usually extended to meet valuation deficits, rather than risk charges.
- Question is to understand the reason of qard arising:
  - E.g. Is it due to mispricing? If yes, is this fair for participants to repay qard?

## CAR ratio

- Taking into account the issues on benefit risk and the interaction with qard:
  - Should there be only one CAR ratio similar to the conventional RBC?
  - Or should there be multiple CAR ratios for each risk fund to reflect the qard and potential surplus in each fund?

## Tax under draft RBCT

Fund	Cashflow	Tax rate
Takaful risk fund	Investment income	8%
Operator's fund	Investment income	0%
Operator's fund	Profit, before allowing for reserves and solvency margin	25%

- Potential double taxation (on investment income transferred and on profit)?
- On operator's fund – computation means higher taxable profits?

# Conclusion

## Conclusion – going back to basics?

- How should risks be quantified in takaful?
- Exactly who are carrying the risks? Need to think through carefully where risks are allocated in takaful. Should it be shareholders or participants?
- Should conventional RBC and takaful RBC be similar or different? If different, how different?
- Are there ‘matching’ (to takaful liability) sharia compliant assets in the market? Are these assets of sufficient volume and tenure?
- Total Capital Available from a risk fund is limited to 100% of capital requirement, arguably forcing an effective transfer of risks from participants to operator?
- What are the implications of RBC on product offering and asset demand? Are these implications desirable?

Questions?

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# Appendix

## Case study: Capital under the draft RBCT

## Draft RBCT – Projection of capital charges

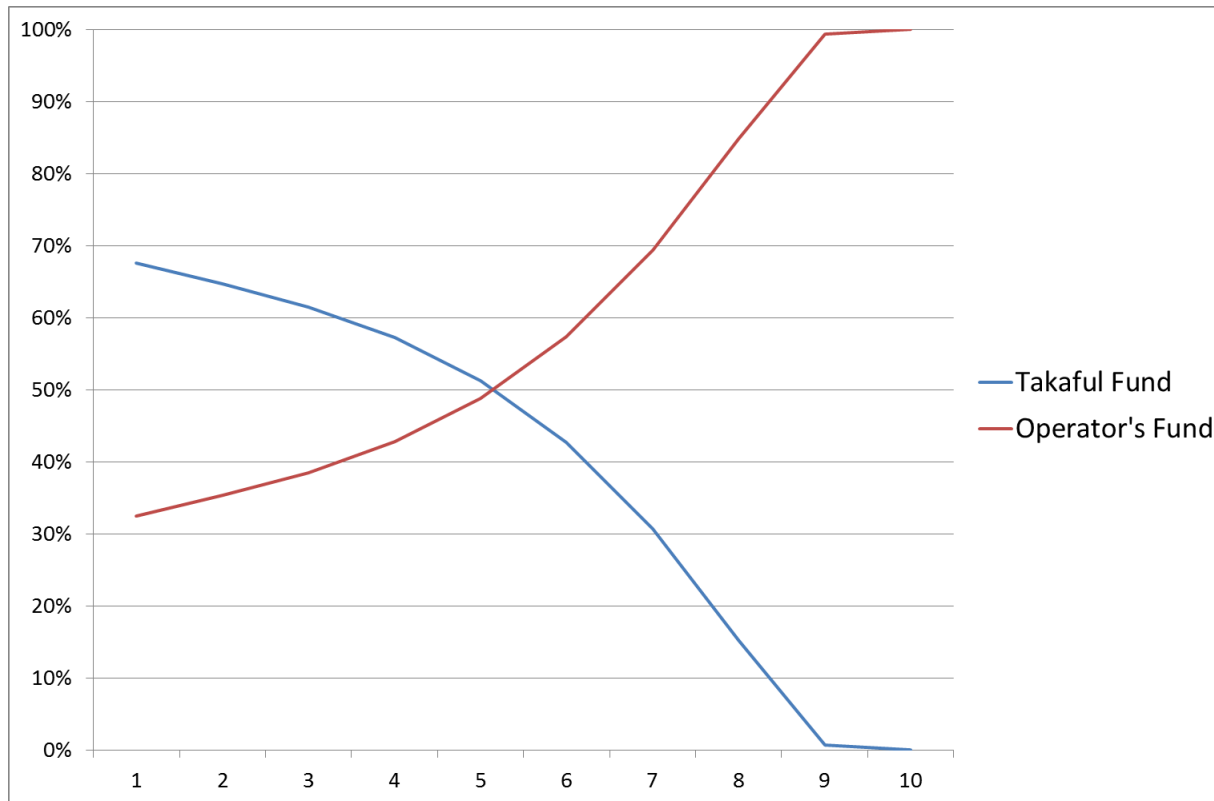
- Example: Single premium savings policy with reducing sum covered.
- Assets:
  - 40% government bonds
  - 40% corporate bonds
  - 10% equities
  - 10% cash
- Different asset allocation will impact the market risk and credit risk capital charges.
- Assume zero surrender value, so there is no surrender value capital charges (SVCC)



## Draft RBCT – Capital charges in the takaful fund and operators fund

### Illustration - Single premium savings policy

- Relative capital requirement as a percentage of total RBCT capital

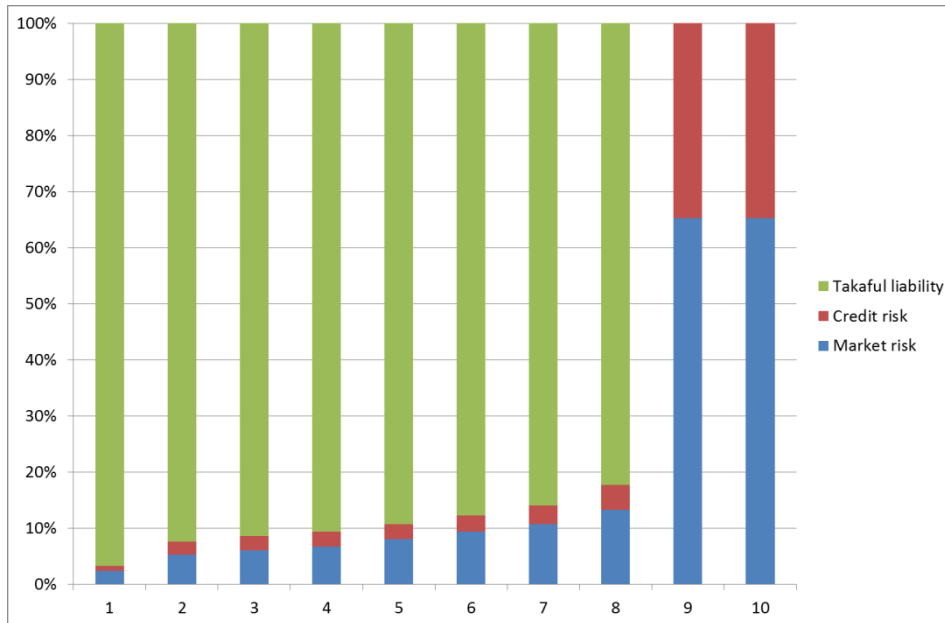


- Capital charges for PRF decreases over time
- Capital charges for Operator's fund increases over time

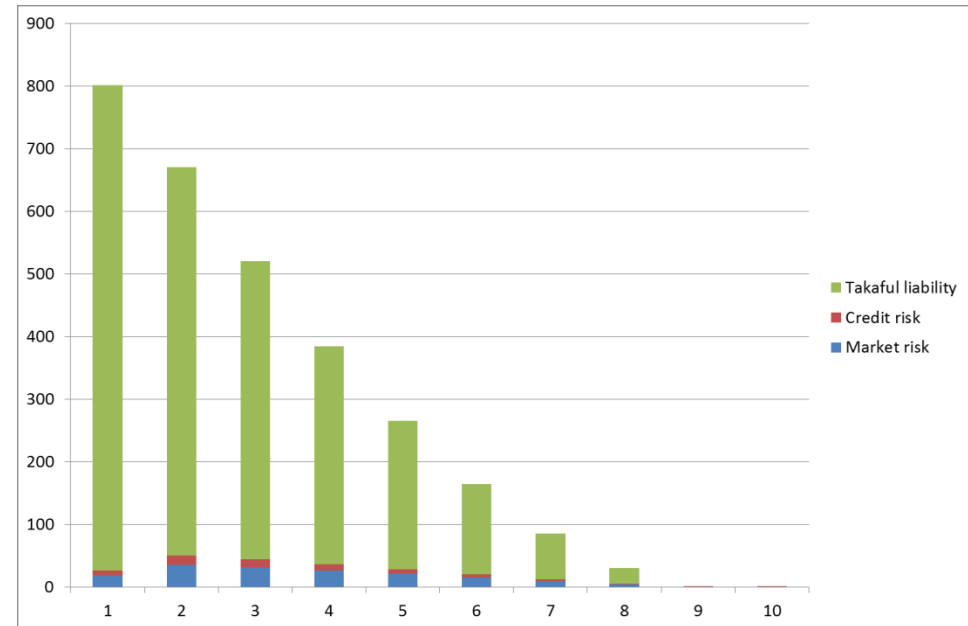
# Draft RBCT – Capital charges in the takaful risk fund

## Illustration - Single premium savings policy

Relative projected RBCT capital requirement in the takaful risk fund



Absolute projected RBCT capital requirement in the takaful risk fund

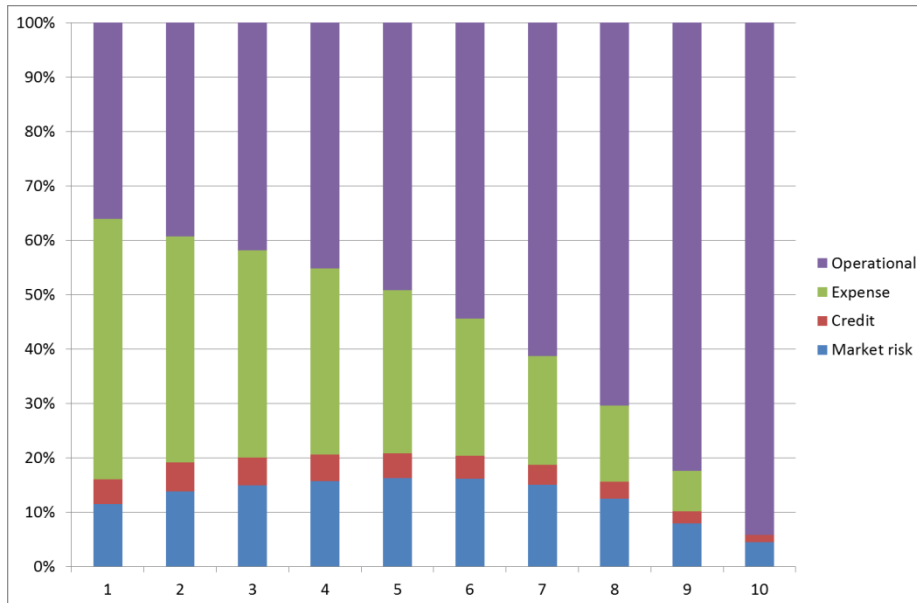


- The capital in the takaful fund is largely driven by the takaful liabilities capital charges

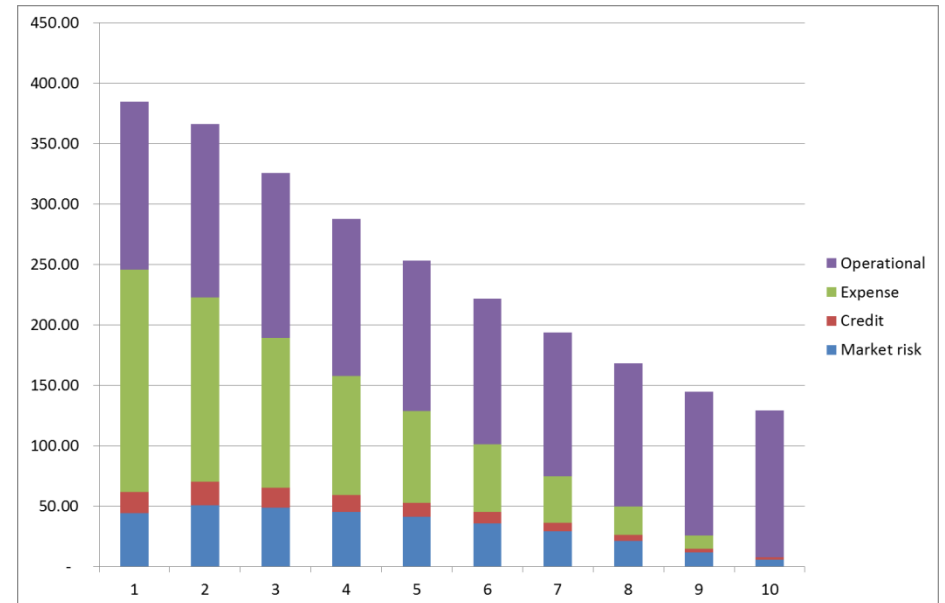
# Draft RBCT – Capital charges in the operator’s fund

## Illustration - Single premium savings policy

Relative projected RBCT capital requirement in the operator’s fund



Absolute projected RBCT capital requirement in the operator’s fund

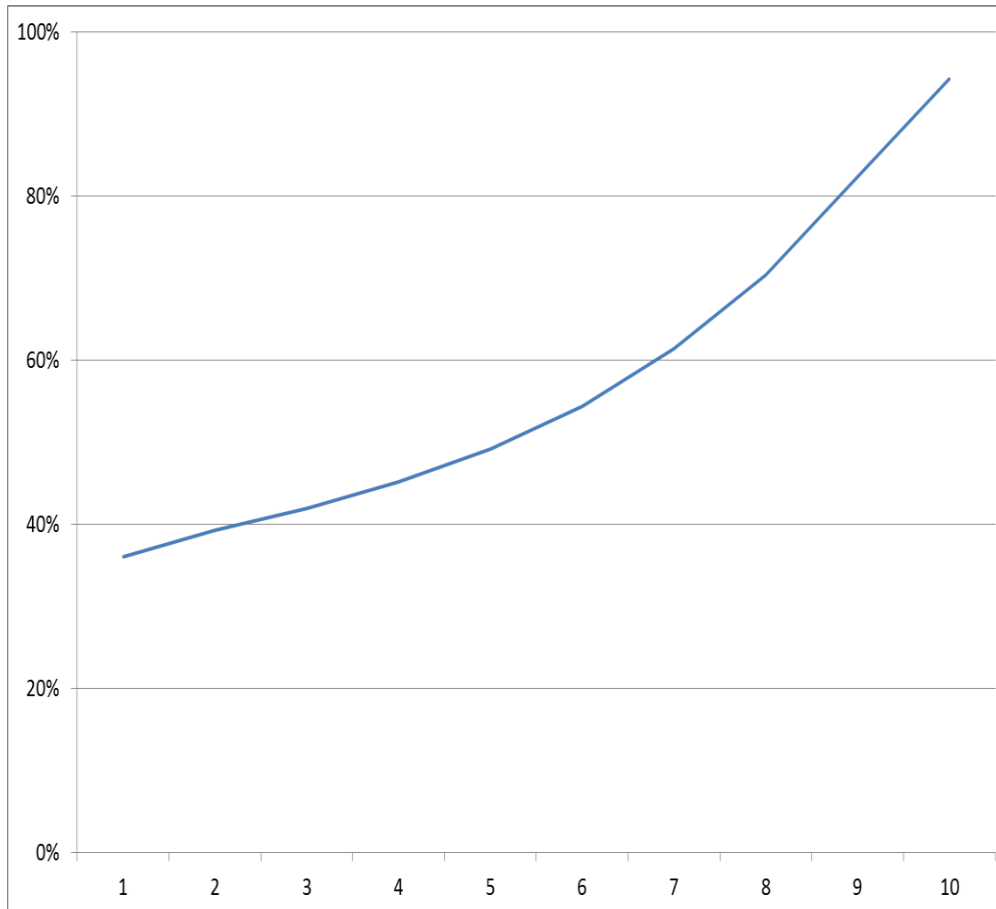


- The capital in the operator’s fund is largely driven by the operational risk capital charges

## Draft RBCT – Operational risk capital charges in operator's fund

### Illustration - Single premium savings policy

Relative projected RBCT operational risk capital charges as a percentage of total capital in the operator's fund

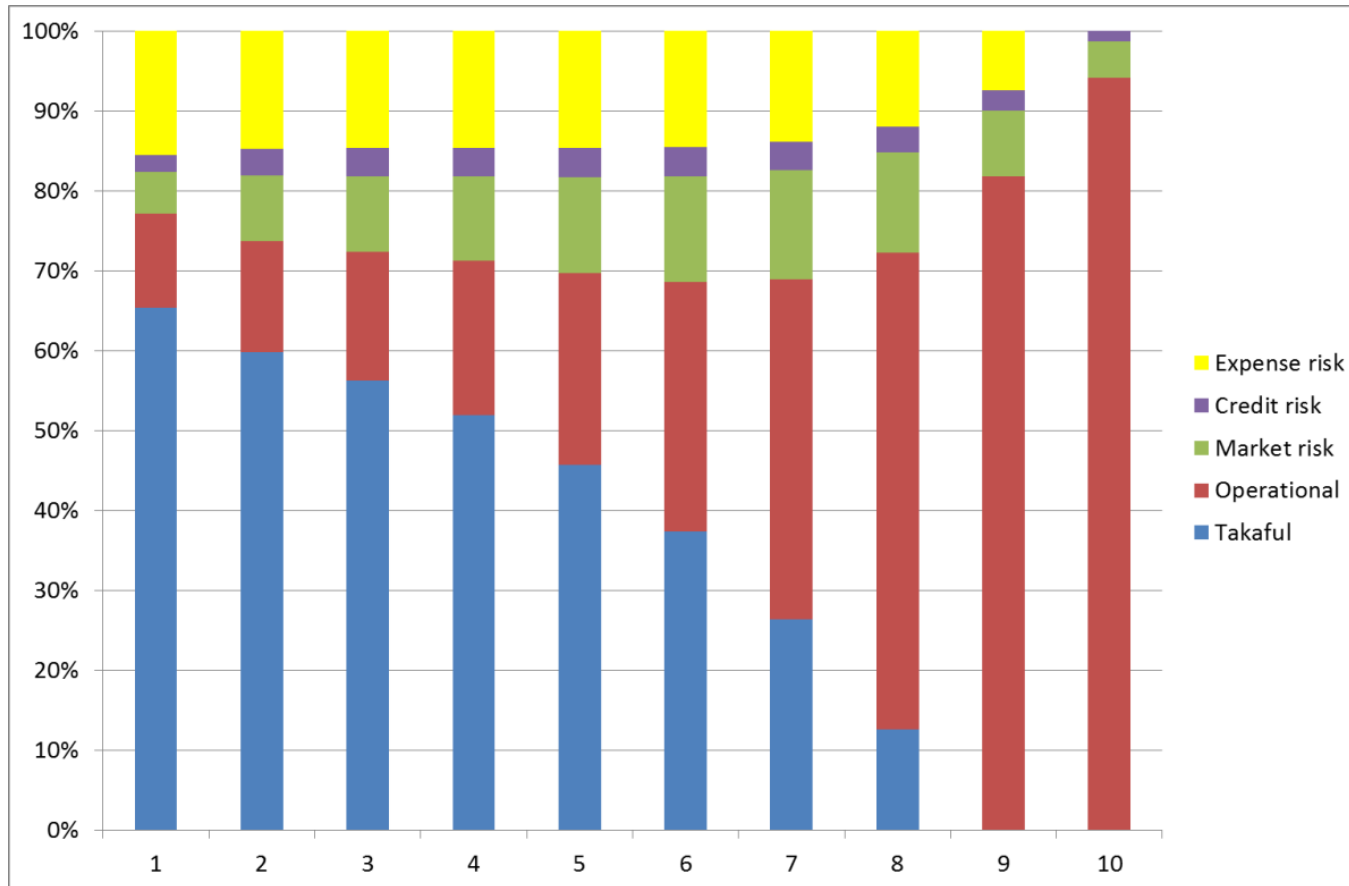


- Operational risk = 1% of assets
- As the asset grows, so does the capital required for operational risk. In the example as the risk charges reduces, the proportion in operational risk increases.

## Draft RBCT – Relative total capital charges

### Illustration - Single premium savings policy

Relative projected RBCT capital as a percentage of total capital (operator's fund and takaful risk fund)



## Draft RBCT – Relative total capital charges

### Illustration - Single premium savings policy

- The two largest capital charges are takaful liabilities and operational risk.
- Market and credit risk depends on the asset allocation.
- RBCT makes certain assets more attractive compared to others e.g. equities are more expensive in terms of capital.
- Mismatching of assets and liabilities is also expensive in terms of capital.
- Under conventional RBC, companies moved away from savings to investment linked products as it is less capital intensive (no market and credit risk charge on the IL fund, similar to savings plan in takaful but this may change in next draft)